

Global Plant Phenotyping Market Recorded Revenue Worth US\$ 243 Mn in 2022; Says Absolute Markets Insights

Global Plant Phenotyping Market to Gain CAGR of 13.6% During 2023 – 2031

HOUSTON, TEXAS, UNITED STATES, July 25, 2023 /EINPresswire.com/ -- Plant phenotyping is the process of quantitatively assessing and analyzing various traits and characteristics of plants, including their morphology, physiology, and responses to environmental factors. It plays a crucial role in agricultural research and crop improvement, contributing to the development of more sustainable and resilient crop varieties. As the world faces mounting challenges in feeding a growing population amidst environmental constraints, plant phenotyping market's significance will continue to grow in ensuring food security and sustainable agriculture for the future.



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Growing Importance of Sustainable Crop Production Using Improved Crop Varieties is Boosting the Global Plant Phenotyping Market

The growing importance of sustainable crop production using improved crop varieties has led to a significant expansion in the plant phenotyping market. As the global population continues to rise and environmental challenges like climate change and resource limitations become more evident, the demand for resilient and high-yielding crop varieties is on the rise. Plant phenotyping plays a pivotal role in this context, as it allows researchers and breeders to precisely measure and analyze various traits and characteristics of plants. By understanding these traits, they can identify specific genetic markers associated with desirable features such as drought resistance, disease tolerance, and enhanced nutrient uptake. The insights gained through plant phenotyping enable the development and selection of crop varieties that are better equipped to

thrive under adverse conditions while minimizing the need for excessive chemical inputs and water resources. Moreover, the integration of advanced technologies, such as drones, robotics, and high-throughput imaging systems, has accelerated data collection and analysis, fostering rapid progress in the plant phenotyping market.

Investments in research and development, coupled with the rising awareness of the importance of sustainable agriculture, have contributed to the growth of the plant phenotyping market. Government agencies, private enterprises, and research institutions are increasingly collaborating to support and fund plant phenotyping initiatives. The market's expansion also presents opportunities for innovative startups and companies to offer cutting-edge phenotyping solutions, further fueling the adoption of sustainable crop production practices.

Field-Based Phenotyping Using Remote Sensing Tools to Possess Futuristic Growth Opportunities in the Global Plant Phenotyping Market

Remote sensing tools, such as satellite and drone-based sensors, can capture data over vast agricultural landscapes. This capability allows researchers to collect large-scale phenotypic data, enabling the analysis of crop performance across different regions and environmental gradients. They offer the ability to monitor crops in real-time, offering insights into dynamic changes in plant growth and health. This continuous monitoring is particularly valuable for assessing crop development, detecting stressors like pest infestations or water shortages, and implementing timely interventions. These tools are equipped with multi-spectral and hyperspectral imaging capabilities owing to which they provide data across a range of wavelengths, revealing detailed information about plant health, nutrient content, and stress responses. This comprehensive data can aid in identifying genetic markers associated with desirable traits.

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Remote sensing data can be integrated with geographic information systems (GIS) and machine learning algorithms, enabling for spatial analysis and predictive modelling. Such integration enhances researchers' ability to understand crop-environment interactions and make data-driven decisions in precision agriculture, which in turn is pushing the global plant phenotyping market demand. Field-based phenotyping using remote sensing tools can be more cost-effective and time-efficient compared to traditional manual measurements. Researchers can cover large areas and collect data more frequently, accelerating the pace of research and allowing for faster decision-making in crop breeding programs.

Thus, the integration of remote sensing tools in field-based phenotyping offers a powerful and promising approach to advance agricultural research and support sustainable crop production. By leveraging these opportunities, researchers can gain valuable insights into plant traits, optimize crop management practices, and develop improved crop varieties that address the challenges of a changing climate and increasing global food demand.

Europe Registered for a Prominent Market Share in the Global Plant Phenotyping Market in 2022

Europe has emerged as a dominant player in the field of plant phenotyping, showcasing remarkable advancements and leadership in research and technological development. The region's prominence in plant phenotyping market can be attributed to several key factors.

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European countries have a strong tradition in agricultural research and innovation. Leading research institutions, universities, and agricultural organizations have invested significantly in plant phenotyping infrastructure and expertise, positioning Europe at the forefront of the field. Moreover, Europe's commitment to sustainable agriculture and environmental conservation has driven the emphasis on developing crop varieties that are resilient to climate change, pests, and diseases. Plant phenotyping plays a pivotal role in achieving these goals, as it enables researchers to identify and select traits that enhance crop performance under challenging conditions.

European collaborations and networks in plant phenotyping market have also contributed to its dominance. Initiatives such as the European Plant Phenotyping Network (EPPN) and the European Infrastructure for Multi-Scale Plant Phenotyping and Simulation (EPPN2020) have fostered knowledge exchange, standardization of protocols, and access to cutting-edge phenotyping technologies across the region. In addition, European countries have shown strong support from governments and funding agencies for research in agriculture and crop improvement. This support has translated into substantial investments in plant phenotyping market facilities and projects, facilitating the rapid growth and development of the sector. The dominant position of Europe in plant phenotyping market is evident not only in academic research but also in industry applications. Leading agribusinesses and seed companies in the region are actively leveraging plant phenotyping technologies to accelerate crop breeding programs and deliver improved varieties to farmers. Thus, Europe's expertise and contributions in plant phenotyping market will undoubtedly remain central to advancing agricultural research and addressing the challenges of feeding a growing population in a changing world.

Global Plant Phenotyping Market Key Competitors

- o Analytik Ltd.
- o CropDesign - BASF SE
- o Hiphen
- o KeyGene
- o LemnaTec GmbH
- o Phenomix
- o Phenospex

- o Plant Ditech
- o PSI (Photon Systems Instruments) spol. s r.o.
- o Qubit Systems Inc.
- o VSN International Ltd.
- o WIWAM – AUTOMATED SYSTEMS
- o Other Industry Participants

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Global Plant Phenotyping Market

By Offerings

- o Equipment
 - Image analysis systems
 - Multispectral scientific cameras
 - Fluorometers
 - Phytoplankton & photosynthesis analyzers
 - Infrared gas analyzers
 - 3D laser scanners
 - Root phenotyping systems
 - Optical Sensors
 - Others
- o Software
- o Services

By Application

- o Plant breeding research
- o Plant growth prediction
- o Biotic and abiotic stress analysis
- o Crop management
- o Early disease detection
- o Trait identification
- o Photosynthetic performance
- o Morphology and growth assessment
- o Green House management
- o Others

By Type of System

- o Compact
- o Modular
- o Field System
- o Self contained systems
- o Root
- o Others

By Carrier

- o Satellite
- o Ground based vehicles
- o Unmanned Aerial Vehicles
- o IoT and smartphones
- o Custom-made imaging systems

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By Region

- o North America (U.S., Canada, Mexico, Rest of North America)
- o Europe (France, The UK, Spain, Germany, Italy, Nordic Countries (Denmark, Finland, Iceland, Sweden, Norway), Benelux Union (Belgium, The Netherlands, Luxembourg), Rest of Europe)
- o Asia Pacific (China, Japan, India, New Zealand, Australia, South Korea, Southeast Asia (Indonesia, Thailand, Malaysia, Singapore, Rest of Southeast Asia), Rest of Asia Pacific)
- o Middle East & Africa (Saudi Arabia, UAE, Egypt, Kuwait, South Africa, Rest of Middle East & Africa)
- o Latin America (Brazil, Argentina, Rest of Latin America)

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